Broad River Basin Council

Implementation Meeting #1 Minutes

RBC Members Present: Karen Kustafik, Amy Bresnahan, Ken Tuck, Frank Eskridge, Jeff Lineberger, Angus Lafaye, Mark Boland, James Kilgo, John Alexander, Erika Hollis, Kristen Austin, Bill Stangler, and Bryant Fleming

RBC Members Absent: Daniel Hanks, Paul Pruitt (David Evans, alternate, present), and Jeff Walker

Planning Team Present: John Boyer, Scott Harder, Alexis Modzelesky, Joe Koon, Leigh Anne Monroe, Tom Walker, and Jeff Allen

Total Present: 26

Ken Tuck, Broad River Basin (RBC) chair, called the meeting to order May 30th, 2024, meeting of the RBC. The May 30th meeting review includes receiving an update on planning in other river basins, learning about Spartanburg water's sedimentation study, and selecting actions to pursue in the implementation plan, identifying needs and assigning responsibilities.

The Broad RBC members unanimously approved the meeting agenda (Frank Eskridge – 1st and John Alexander – 2nd), and the February meeting minutes and summary (John Alexander – 1st and Erika Hollis – 2nd).

There were no public and agency comments.

The housekeeping items: Any member with technical issues should let us know.

Review and Discuss RBC Membership: John Boyer facilitated this session, where he talked about the 2-year term of existing membership, except for Justin, who dropped out. Hence, everybody will get an additional 3-year term. There are currently 16 active members on the Broad RBC.

Discussion:

C: We do have forestry but lost agriculture. Hard to get them in the room and sustain membership. Need representation in that category. Fruit farms, peaches, etc are still here in this part of the state

Q: To a member regarding membership – Still want to participate?

A: Stick around on the Broad until I hear more

C: Will ask Thompson Smith regarding ag rep

C: In SC, if we don't have anyone from ag it is a step backwards

C: There's a guy on the Tyger River who's had some stream restoration work done on his land. Sorry on the Pacolet River

C: Anyone in Soil and Water Conservation District in Spartanburg?

Update on Planning in Other River Basins: Scott Harder started off this discussion by giving an update on the State Water Plan Schedule (8 planning basins which include Edisto, Broad, Pee Dee, Catawba, Saluda, Upper Savannah, Lower Savannah/Salkehatchie and Santee). The Edisto and Broad plans are completed. Catawba, Saluda, Upper and Lower Savannah are in various phases of development. Santee planning will begin in the fall. The State Water Plan is anticipated to begin in the fall of 2024 and roll over into 2025.

Pee Dee River Basin Planning:

- 24 RBC meetings to date
- Chair- Buddy Richardson (USDA FSA)
- Vice-Chair- Cara Schildtknecht (Winyah Rivers Alliance)
- Currently in Phases II-IV:
    - Surface water assessment is complete,
    - Groundwater assessment is ongoing,
    - Evaluation of management strategies is ongoing
    - Portions of the River Basin Plan have been prepared
- Final River Plan -Winter 2024/2025

Saluda River Basin Planning:

- 14 RBC meetings to date

- Chair- K.C. Price, (LCWSC)
- Vice-Chair- Katherine Amidon (Bolton and Menk, Inc)
- Currently in Phase IV:
    - working on drought management and other plan recommendations,
    - RBC has shown interest in protecting recreational flows,
    - Field Trips to Lake Murray Dam, LCWSC WTP, ReWa WRRF, Unity Park, and Various stream restoration sites.
- Final River Basin Plan February 2025.

Upper Savannah River Basin Planning:

- 10 RBC meetings to date
- Chair- Jill Miller (SCRWA)
- Vice-Chair, Jeff Phillips (Greenville Water)
- Currently in Phase III:
    - Focus is on surface water
    - Developing drought management recommendations
- Final River Basin Plan- June 2025.

Lower Savannah- Salkehatchie River Basin Planning:

- 6 RBC meetings to date
- Chair- Kari Foy (Low Country Regional Water System)
- Vice-Chair- Ken Caldwell (Alliant Insurance Services, Tree farmer)
- Currently in Phase II- evaluation of surface water availability
- Water availability assessment will include both surface water and groundwater.
- Final River Basin Plan- October 2025.

The Interbasin River Council has been formed between the Upper and Lower Savannah- Salkehatchie RBCs, which allows for creating a council between two or more basins and sharing information among members.

Discussion:

Q: Groundwater model – same model DHEC uses for Capacity Use Areas?

A: A little bit it's a case-by-case basis – Potentiometric data and historical data pumping in the area

Common Threads Emerging from the River Basin Planning Process

For Surface Water Resources:

- Generally sufficient to meet current and projected future needs
- If fully permitted and registered amounts (surface water) were withdrawn, the basin would be notably more stressed with frequent shortages and more severe low flows

Process Recommendations:

- Emphasized educational outreach and communication with the public, other water users, and the State legislature
- RBCs generally support continued funding for the river basin planning process by the State Legislature.

Technical:

- Emphasized need to enhance surface and groundwater monitoring.
- Scope of planning should be expanded to: include water quality considerations and impacts of land use change on water quantity and quality.
- Future water availability analyses should consider potential changes in hydrology (water supply)
    - Climate Change Scenarios
    - Extending historic climate records (dendroclimatology, for example)

Extended Drought Analysis- examples from the Saluda and Upper Savannah Basins:

John Boyer facilitated this session, discussing what is the impact on the Saluda basin reservoir if the drought of 2007-2008 were repeated. Lake Greenwood levels repeating the hydrology of 2007-2008 using the 2070 High Demand Scenario. So, we took all the inflows that came into the model for 2007 and 2008, replaced the 2009 and 2010 hydrology with 2007 and 2008, and then ran those 2 years in succession. And see if those 2 dry years would have an impact on Lake levels. We noticed it started to recover and was not able to meet the guide curve, and there will be shortages. This indicates that Lake had no problem refilling even with lower inflows.

Resequencing Historical Flows to Investigate Potential Future Droughts in the Upper Savannah Basin

Three Constructed Scenarios/ Methods:

1. Repeating 5-year drought constructed by splicing together the five driest water years in the hydrologic period of record with respect to mainstem total annual flow. These were 2001, 2008, 1981, 1988, and 2017.
2. Repeating single-year drought corresponding to the second driest water year (2008) and identified as the critical single-year drought with respect to Lake Thurmond water supply availability.
3. Repeating synthetic drought year constructed by splicing together the twelve driest calendar month flows in the hydrologic period of record.

The methods utilized are ranked data based on mainstem headwater flows using the 5 driest years in terms of mainstem flow, which include 2001, 2008, 1981, 1988 and 2017.

The 12 driest calendar months (mainstem headwater flow) with a mean annual flow = 22.5 CFS are Jan 1956, Feb. 2017, Mar 2017, Apr 1986, May 2001, Jun 2008, Jul 2008, Aug 2007, Sep 1954, Oct 1954, Nov 2016 and Dec 1955.

For Lake Thurmond, using the high demand scenario, looking at 10 years of data that meets its guide curve each year. When we put the first 5 driest years together, we noticed that after the 1st year and getting into the 2nd year, it's having a hard time meeting the guide curve. It dropped some more in the 4th year, and we started getting some shortages. Month 49-shortages appear for Lake Thurmond water users in Scenario 1. In Month 37-shortages appear for Lake Thurmond water users in Scenario 2. Month 17-shortages appear for Lake Thurmond water users in scenario 3.

Discussion:

Q: Want to look at breaking the model results for the Broad?

A: A lot less storage in this basin

C: If you did the same in this basin we would have problems

C: Hartwell – USACE if it dropped to Deadpool – power generation had to stop

C: We didn't change rules, wanted to see the impact. USACE may vary rules in reality

C: We looked at relative short period of record. With dendro there is likely worse historical droughts. Maybe pair with dendroclimatology?

C: I'd support running the exercise

C: Synthetic drought scenario

C: A really good statistician could develop probability. 2 of the 3 are realistic

Q: 2001 hydrology then 2008 it picks back up where it left off?

A: In the lakes/reservoirs, yes

C: Continental – based on what water is available

C: 5 dry years together – impact to gw as well with less baseflow to rivers. This isn't conservative in that regard. Used 2070 HD scenario. 50 years into future – temp higher and more evaporation

C: Ran HD only

C: Need a motion – contingent on funding?

C: Let's wait until later in the meeting

Spartanburg Water Sedimentation Study:

John Boyer anchored this session with the Broad River Implementation Plan, highlighting the implementation Strategy, Strategy Priority and 5-Years Actions. Objective 5 is to improve technical understanding of water resources management issues. Strategy C emphasized researching financial impacts of increased sedimentation on reservoirs and water resources and communicate impacts to local government. The 5-year action is

- using estimates of sedimentation and considering future land use (2070), estimating the current and future loss of storage to Broad River basin reservoirs (yrs 1-2).
- Develop methodology to estimate financial impacts related to loss in storage dredging, new supplies) (yrs 1-2)
- Communicate financial impacts of sedimentation on water supply relates to local governments (yrs3-5).

Problem Statement:

Sedimentation in Lake Bowen, Municipal Reservoir #1, and Lake Blalock has the potential to reduce water supply capacity, increase the cost of water treatment, and impact lake recreation and aesthetics.

- As Lake storage volumes decrease due to sedimentation, so will sediment trapping efficiency, resulting in an increase in suspended solids concentrations and higher treatment costs.

- Dredging of 289 acres in Lake Bowen and Municipal Reservoir #1 was estimated to cost more than $33m
- Development and more frequent high-intensity storms may increase sediment loads coming into reservoirs.

Project Objectives: Phase 1

1. Analyze and estimate rates of sedimentation to Spartanburg Water's reservoir and potential loss of water supply storage.
2. Estimate the financial impacts of sediment loading to the reservoirs, including the cost to address reservoir sedimentation and the economic impacts of not addressing sedimentation.

Phase 2:

3. Develop and implement an outreach and education plan to raise awareness of sources of sediment and the community-wide impact of sediment entering the reservoirs from erosion and transport in the watershed
4. Conduct a risk analysis to determine how best to spend and prioritize limited funds to reduce sediment loading to the reservoirs and mitigate the impacts.

However, in February 2008 and June 2023 (USGS), we collected all the monthly Bathymetry data, and we noticed that the most comprehensive best resolution was data in June 2023. From 2008 to 2023 is about 15 years of comparison (Lake Bowen 2008 to 2023 Bed Elevation Change).

Estimated Storage Change and Sediment Loads Based on Bathymetric Survey Comparison:

Lake Bowen with 770 MG gallons of volume loss due to sedimentation. If you add in the Scour area of about 188 million gallons, we get a net of about 581 MG, which is about a 7% loss of storage over these past 15 years. Municipal Reservoir 109 MG volume of loss with about 6% net sedimentation. (Net sedimentation rate based on bulk density range of 0.4 to 1.8 tons/cubic meter).

Lake Blalock Elevation Profiles (2019 and 2023): We really don't see a lot of sedimentation; we saw a very slight net scour, which is just within the range of uncertainty.

Discussion:

C: Flow restriction in the lake there could be responsible (scour) during high rain events

C: Did something in Catawba that was similar

C: Yes, similar – worst reservoir lost 38% of storage over its life. Some sedimentation end up in places where it might not affect the intake water level. 15 years of data is great – project it out to the planning horizon for the model

C: Hopefully the data can help tell the story – change behaviors. Stormwater and construction in Spartanburg

C: Lake Blalock is less of an issue maybe

C: Is there more development?

C: We've seen rises of 8 feet during severe storm events

C: My theory is sediment moves big time (deposition) during those large events

C: We can get ahead of what is coming downstream and move water to adjust

What are the Financial Impacts of sedimentation?

- Loss of storage, resulting in cost to dredge to regain storage or develop new water supply
- Cost of treatment may increase due to increasing suspended solids and turbidity (chemical dosing, backwashing, solids handling etc)
- Decrease on property values because of direct or indirect impacts of sedimentation.

Decrease in recreation/economic spending because of direct or indirect impacts of sedimentation.

Discussion:

Q: When will the study be done?

A: Phase 1 – next two months

C: We've been trying to correlate impacts for years, so this is encouraging

Q: Are we saying Lake Bowen is getting sediment at 7% every year?

A: Every 15 years

C: 0.5% a year gives the Lake a 200-year life and will be filled with silt

C: Concern would be if we will see more severe heavy rains

C: Coupled with impervious surfaces, we are having major impacts

C: Is there a correlation to development and impervious surfaces with these events?

C: We've seen more sedimentation just by observation over the last few years. Need to take a timeout and manage stormwater issues

C: Second step is to prioritize land drainage areas maybe

C: We did that already within our watershed

C: Hard to go backwards – plenty of opportunity to change land use moving into the future

C: Have Michelle come to the next meeting to discuss with Daniel Hanks

Q: Similar things done in PD with flatter land? Similar trend?

A: Not a lot of reservoirs in the coastal plain – don't recall

C: Santee Cooper probably – has Lake Moultrie

C: USACE not too concerned with sedimentation in the Savannah

Implementation Plan:

Chapter 10 contains 5 implementation objectives which include;

1. Improve water use efficiency to conserve water resources (high prioritization)
2. Optimize and augment sources of supply (medium Prioritization)
3. Improve drought management (high prioritization)
4. Effectively communicate RBC findings and recommendations (high prioritization)
5. Improve technical understanding of water resource management issues. (medium prioritization).

We will focus on the three high-prioritization objectives;

Objective 1. Improve water efficiency to conserve water resources:

1. Identify funding opportunities (yrs 1-5)
2. Establish a baseline of residential per capita water use (yr 1) by system
3. Implement outreach and education program about recommended water management practices and funding opportunities (yrs 1-5)
4. Individual water users to implement conservation practices (yrs 3-5)
5. Develop survey of practices implemented, funding issues, and funding sources utilized (beginning in yr 5 of 5-year Plan update).
6. Review and analyze per capita water usage to improve understanding of water savings of strategies (beginning in year 5 as part of 5-year Plan update).

So, to address this second action by finding the baseline for each utility and then understand after 5 years and 10 years what's been the change in their per-use.

Discussion:

C: May be available online in annual financial reports

C: Does per capita usage include industrial? Interest was residential

Q: Breaking residential and irrigation also?

C: We look at water being used by people. Census data – people per household. Complicated

C: See change in per capita use over time and see if strategies are effective

C: AWWA benchmarks

C: May have people resources from future DES to help with staff support

C: May be reported to DHEC

C: Tap fee stuff – start with DHEC first

C: Doug Kinard or Rich Welch at DHEC. Sanitary survey – Marty Cheaney has been collecting that info. DHEC glad to assist – posing the question to Joe or Leigh Anne is a good place to start

C: John will send an e-mail to Joe or Leigh Anne for a starting point

C: Monthly meeting with utilities – 12 or so people. Good topic and a place to start

C: Some strategies we considered during the planning process – changing rate structure, block structure, drought surcharge – Ken Tuck will mention to group of water utilities at monthly meetings

C: Worth reaching out to lower basin utilities? Union County, etc? Yes, I know them

C: Also SCRWA and SCAWWA /WEASC

C: Virtual meeting coming up to discuss with SCAWWA

C: Upcoming events – SCRWA conference (RBC Chat)

C: Could do a similar summit for CWWMG

C: Annual event? Statewide? Basin-specific summit?

C: People would come if the SW Bill was one of the topics

C: SCEC we could have a meeting with Broad River Basin utility folks - SCEC utility conference

C: Frank E going to drive that for SCEC – meeting of Broad utilities at SCEC

C: Projects for efficiency? Replacing meters for example. SRF funding. Most large utilities have been replaced. They do service line replacement. Maybe meter replacement. Smaller utilities – SCRWA opportunity

Objectives 3. Improve Drought Management

Strategy A. Develop materials and outreach strategy to public suppliers in the basin to implement the RBC's drought management recommendations.

1. Develop materials on benefits and implementation of RBC drought management recommendations (yr 1)
2. Develop outreach strategy to communicate with public suppliers and distribute materials (yr 2)
3. Execute outreach strategy and update materials as necessary (yrs 3-5)
4. Develop approach to track updates to drought management plans in the basin (yrs 3-5)

Strategy B. Public suppliers on the RBC should review and regularly update their drought management plans, including their supporting water shortage response ordinances and consider other RBC recommendations related to drought planning for their individual operations.

1. Public suppliers on the RBC to review and update their drought management plan, including their supporting water shortage response ordinances and send them to the SCO (yrs 1-5)
2. Public suppliers on the RBC to consider ways to incorporate RBC drought management recommendations into their drought plans and ordinances (yrs 1-5)
3. Updates to drought management plans and ordinances should be shared with the SCO

Five Broad RBC Drought Recommendations (Ch. 8):

1. The RBC recommends that water utilities review and update their drought management plan and response ordinance every 5 years or more frequently if conditions change.
2. The RBC recommends that water utilities, when updating their drought management plan and response ordinance, look for opportunities to develop response actions that are consistent with those of neighboring utilities.
3. The RBC recommends that water utilities coordinate, to the extent practical, their drought response messaging

4. The RBC encourages water utilities in the basin to consider drought surcharges on water use during severe and/or extreme drought phases.
5. When drought occurs, the RBC encourages water users and those with water interests to submit their drought impact observations through the Condition Monitoring Observer Report (CMOR).

Discussion:

C: We've done that too and submitted it to DNR8 months ago. Waiting for it to be updated on their website (SCO)

C: Scott Harder to check with Elliot about posting updated plans online

C: Topic of conversation at the SCEC meeting

C: Workshops on drought plan updates? With SCO

C: James will check to see if there are any SCRWA workshops in the Broad basin

C: CWWMG summit – 7 years in a row – could we do a similar summit in the Broad basin?

C: SCWRC could do a gathering around that at our conference

C: Could submit an abstract for a panel – whole track session – mix presentation and meeting. Ken Tuck – SCWRC panel and Tom will send the form. Planning/policy track on the 1st day in the afternoon "Broad Implementation – Outreach and Education" – Erika Hollis to partner

Objective 4. Effectively communicate RBC findings and recommendations.

Strategy B. Develop a communication plan early in the planning process and conduct education and outreach prior to completion of the River Basin Plan.

1. Develop talking point/script to provide consistent message from RBC. Talking points will vary depending on whether communication is with public or elected officials/decision makers. Engage communication specialists to help with messaging (yrs 1-5).
2. Track which representatives have been spoken to and by whom from the RBC. Note any outcomes of conservation (yrs 1-5)

Strategy C: Conduct an annual state-wide meeting of the RBCs with the Agriculture and Natural Resources Committee of the State Senate and the Agriculture, Natural Resources and Environmental

Affairs Committee of the State House to communicate the value of water planning, highlight progress and recommendations, and lobby for continued funding.

1. SCDNR to gage interest from all active RBCs (yr 1)
2. SCDNR to plan first annual meeting location, agenda, and invitees. Identify costs and identify funding source (yr 1-2)
3. Execute annual meeting (yrs 3-5)

Discussion:

Q: County boards outreach? Still part of the plan?

A: Interested yes, what would be the message?

C: Try to get in front of Spartanburg Co Council for Spartanburg Water – good starting point

C: Need more data – Fall for Spartanburg Co

C: Any other counties we want to present the plan, findings?

C: Keep it short at County Council meetings – 15 minutes

C: Two-pager is the message?

C: Tear sheets – 1 page bullets and graph. Most involved with land use and the nexus between the two (RBC Chat)

C: Election year matter?

C: Table communication until after September? Sedimentation – have that fact/tear sheet at next meeting

C: Q4

C: Budget occurs during Legislative session

C: Have they passed the budget yet this year? (RBC Chat)

C: January – March or end of calendar year

C: Reorg stuff needs to calm down some first maybe

C: DNR folks specifically – there will be some settling down time needed

John Boyer to gauge interest from RBCs for annual meeting

Objective 5. Improve technical understanding of water resource management issues

Priority 1/Strategy- (A): maintain and expand streamflow gages in the basin.

The facilitator should create an online library of, or a catalog links to technical information that will enhance the RBC's technical understanding of water resources concepts and issues.

Priority 2/ Strategy B: Research how changes in land use impact water resources quality and quantity.
Priority 2/ Strategy C: Research financial impacts of increased sedimentation on reservoirs and water resources and communicate impacts to local governments.

Discussion:
Q: Mechanism to notify RBC if in the Broad there is a gage that will be retired?
A: Not always given notice directly. Usually on websites – SAWSC – Tim Lanier – Scott Harder – notify.
Create online catalogue – John Boyer
C: Would like to add those to our Broad planning page eventually
C: We did initial study – land prioritization – topic by Katie Hottel and/or Erika Hollis
Motion – To do extended drought analysis dependent on CDM Smith budget – 1 and 2 constructed scenarios – Repeat 5 year and Repeat 1 year and look at impact to reservoirs and downstream impacts maybe
C: New intake for Gaffney?
C: (RBC Chat)
C: Tyler Brown may be able to help find us an Ag rep through the Soil and Water Conservation District
C: Pacolet farmer – through Josh Robinson – John Boyer

Meeting adjourned: 12:51 pm
Motion to adjourn: 1st – Frank Eskridge and 2nd – John Alexander

Minutes: Iffy Ogbekene and Tom Walker
Approved: 11/21/24

RBC Chat:
10:04:25 From James Kilgo to Everyone:

Will do. Thanks.

10:09:58 From James Kilgo to Everyone:

Great presentation.

10:10:16 From James Kilgo to Everyone:

Yes. I can get that for you.

10:40:25 From Kristen Austin to Everyone:

All good here!

11:07:43 From Thomas Walker to Everyone:

break until 11:20

11:23:59 From bfleming to Everyone:

Yes we do that

11:35:40 From James Kilgo to Everyone:

2024 ANNUAL CONFERENCE

Registration opens June 17

Monday-Wednesday, November 18-20, 2024

Marriott Grande Dunes - Myrtle Beach

11:35:52 From James Kilgo to Everyone:

SCRWA Annual Conference this year.

11:36:11 From Thomas Walker to Everyone:

thank you!

11:58:46 From Thomas Walker to Everyone:

break for lunch until 12:20 or so

11:59:17 From Kristen Austin to Everyone:

I'm going to need to sign off for another meeting now. Thank you for hosting this online option today, it helped in the schedule pinch I"m in. Thanks!

12:29:50 From Congaree Riverkeeper to Everyone:

For Lexington, Richland and City of Columbia it may be best to do a joint one with the Saluda RBC (and depending on timing Santee).

12:33:27 From Congaree Riverkeeper to Everyone:

There will likely be a senate subcommittee to discuss surface water issues in the fall. Probably a good opportunity to engage. PPAC is also looking at this.

12:47:01 From bfleming to Everyone:

Yes we are looking at restarting our old intake

12:47:19 From Thomas Walker to Everyone:

thank you

12:51:43 From James Kilgo to Everyone:

That's correct

12:52:17 From bfleming to Everyone:

Thanks for having the Zoom option

12:52:23 From Thomas Walker to Everyone:

meeting adjourned!

12:52:27 From Thomas Walker to Everyone:

very welcome